

We claim:

1. A computer-implemented method for distributed fair scheduling comprising:

tagging a packet with a start tag;

determining a back-off interval based on at least the start tag of the packet;

5 counting from the back-off interval to a predetermined transmission time; and,

transmitting the packet upon counting from the back-off interval to the predetermined transmission time.

2. The method of claim 1, further comprising:

determining whether a collision occurred between the packet and another packet; and,

10 upon determining that a collision occurred, determining a new back-off interval, and

transmitting the packet upon counting from the new back-off interval to the new predetermined transmission time.

3. The method of claim 1, further initially comprising receiving the packet at a node for transmission therefrom.

15 4. The method of claim 1, further initially comprising resetting a virtual clock.

5. The method of claim 4, further comprising updating the virtual clock to the start tag of the packet upon determining that the start tag exceeds the virtual clock.

6. The method of claim 4, wherein determining a back-off interval comprises determining the back-off interval based on also the virtual clock.

7. The method of claim 1, wherein tagging a packet with a start tag comprises determining the start tag as greater of a virtual clock and a finish tag of a previous packet.

5 8. The method of claim 1, wherein the predetermined transmission time comprises zero.

9. A computer-implemented method for distributed fair scheduling comprising:

tagging a packet with a start tag set as greater of a virtual clock and a finish tag of a previous packet;

determining a back-off interval based on at least the virtual clock and the start tag of

10 the packet;

counting from the back-off interval to a predetermined transmission time; and,

transmitting the packet upon counting from the back-off interval to the predetermined transmission time.

10. The method of claim 9, further comprising:

15 determining whether a collision occurred between the packet and another packet; and,

upon determining that a collision occurred, determining a new back-off interval, and

transmitting the packet upon counting from the new back-off interval to the new predetermined transmission time.

11. The method of claim 9, further comprising updating the virtual clock to the start tag of the packet upon determining that the start tag exceeds the virtual clock.

12. A computerized system comprising:

a link through which packets are transmitted; and,

5 a plurality of nodes, each node transmitting a packet through the link when a counting from a back-off interval for the packet reaches a predetermined transmission time, wherein the back-off interval for each packet is based on a start tag of the packet and a virtual clock maintained by the node of the packet.

13. The system of claim 12, wherein each node comprises a controller at which the
10 packet for the node is received for transmission through the link.

14. The system of claim 12, wherein the predetermined transmission time comprises zero.

15. A computer comprising:

at least one application generating one or more packets for transmission through a link operatively coupled to the computer; and,

15 a controller to receive each packet as generated by the at least one application, and to transmit each packet through the link when a counting from a back-off interval reaches a predetermined transmission time,

wherein the back-off interval for each packet is based on a start tag of the packet and a virtual clock maintained by the controller.

16. The computer of claim 15, wherein the predetermined transmission time comprises zero.

17. A machine-readable medium having instructions stored thereon for execution by a processor to perform a method comprising:

- 5 tagging a packet with a start tag;
 determining a back-off interval based on at least the start tag of the packet;
 counting from the back-off interval to a predetermined transmission time; and,
 transmitting the packet upon counting from the back-off interval to the predetermined transmission time.

- 10 18. The medium of claim 17, wherein the method further comprises:
 determining whether a collision occurred between the packet and another packet; and,
 upon determining that a collision occurred, determining a new back-off interval, and
transmitting the packet upon counting from the new back-off interval to the new predetermined transmission time.

- 15 19. The medium of claim 17, wherein the method further initially comprises receiving the packet at a node for transmission therefrom.

20. The medium of claim 17, wherein the method further initially comprises resetting a virtual clock.

21. The medium of claim 20, wherein the method further comprises updating the virtual clock to the start tag of the packet upon determining that the start tag exceeds the virtual clock.

22. The medium of claim 20, wherein determining a back-off interval comprises
5 determining the back-off interval based on also the virtual clock.

23. The medium of claim 17, wherein tagging a packet with a start tag comprises
determining the start tag as greater of a virtual clock and a finish tag of a previous packet.

24. The medium of claim 17, wherein the predetermined transmission time comprises
zero.

25. A machine-readable medium having instructions stored thereon for execution by a
10 processor to perform a method comprising:

tagging a packet with a start tag set as greater of a virtual clock and a finish tag of a
previous packet;

determining a back-off interval based on at least the virtual clock and the start tag of
15 the packet;

counting from the back-off interval to a predetermined transmission time; and,

transmitting the packet upon counting from the back-off interval to the predetermined
transmission time.

26. The medium of claim 25, wherein the method further comprises:

determining whether a collision occurred between the packet and another packet; and,

upon determining that a collision occurred, determining a new back-off interval, and

transmitting the packet upon counting from the new back-off interval to the new

5 predetermined transmission time.

27. The medium of claim 25, wherein the method further comprises updating the virtual

clock to the start tag of the packet upon determining that the start tag exceeds the virtual

clock.

2025 RELEASE UNDER E.O. 14176